BRONX RIVER PILOT OYSTER REEF RESTORATION: METHODS, MONITORING AND COMMUNITY PARTICIPATION

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Eastern Oysters (*Crassostrea virginica*) were once plentiful in the estuarine waters of the NY/NJ Harbor. Due to disease, over-harvesting and poor water quality, the eastern oyster population of the harbor declined to nearly zero in the early 1900's. Oysters are still located in small pocket populations around the harbor today, including at the confluence of the Bronx and East River where oysters are growing on hard rock substrate as well as debris. We tested clamshell as a substrate for oyster spat settlement at this Bronx River location. The study site was the intertidal water off the south side of Soundview Park, where there is a tide difference of 7.5 ft and an average salinity of 24 ppt. We placed 205 plastic mesh bags of clam shell at the project site in two layers as a pilot reef environment covering a basal area of 16.5 m^2. Four monitoring trays were placed at the site and filled with two bags of clam shell each. The reef was monitored for oyster spat settlement and size and for invertebrate, fish, and algae colonization. Two comparison plots 15 m^2 each (an intertidal rocky outcrop exposed at low tides and rocky shoreline) were monitored for live oysters of all sizes and for oyster shells. The number of oyster spat found on the pilot reef was compared to the number of oyster spat found on the substrate at the comparison plots. Preliminary results from the initial season of monitoring show that the oyster larvae favored the clam shell substrate over the substrate available in the comparison plots. A diversity of 16 species of organism were located during the monitoring of the site showing that the bagged clam shell substrate created a community reef environment. Benthic invertebrate and sediment trap samples were collected at the project site and a control site pre and post reef placement to gather information about the change the reef structure has on the benthic environment. Community participation was important for all stages of the reef creation, placement and monitoring. Bronx River community groups participated in over 1000 hours of work on this project with NRG staff. Further monitoring work, systematic shell placement and community participation is needed to gather more information about this project site and to inform future oyster restoration projects at this and other NY/NJ estuary sites.